IMMEDIATE EFFECTIVENESS OF THE LAVENDER ESSENTIAL OIL TO REDUCE STRESS IN THE ELDERLY.

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ABSTRACT

This research was aimed to study on the immediate effectiveness of lavender essential oil to reduce stress in the elderly people by the quasi-experimental research method. The sample group of this study was the elderly people at Wat Khok Ket Health Promoting Hospital, Plai Phong Phang Sub-District, Amphawa District, Samut Songkhram Province. The Suanprung Stress Test-20 (SPST-20) was used to select 40 elderly people and divide into 2 groups (20 for the experimental group and 20 for the control group) by using the simple random sampling method. The experimental group was treated by lavender essential oil, laying down and inhaling it from the kiln for 10 minutes, and the control group was treated by the normal treatment; giving consult on healthcare, stress management and using the Heart Rate Variability (HRV) to assess before and after the experiment in both groups for comparing the experimental group and control group. The statistics for data analysis were percentage (%), mean $(\bar{x})$, standard deviation (S.D.), paired samples t-test and independent t-test.

The findings revealed that the SDNN (Standard Deviation of Normal to Normal) score of HRV in the experimental group before and after the experiment were different with a significance level of 0.05, and SDNN score of HRV in the experimental group after the experiment was higher than the control group with a significance level of 0.05.

From the findings, it assumed that using lavender essential oil could reduce stress, then using aromatherapy by inhaling lavender essential oil should be a choice to reduce stress in the elderly people.

Keywords: Immediate, Effectiveness**,** Lavender Essential Oil, Stress, Elderly

INTRODUCTION

Nowadays, a stress becomes the significant mental health problem in all ages which affects to the body system for such the nervous and brain system, endocrine system and immune system. The person who has a high stress would affects to the gastric disease, hypertension, coronary disease, insomnia and tension-type headache (Ward TN, Levin M, Philips JM, 2001). From a study on the trend of Thai population revealed that the elderly people tended to increase rapidly with their regressive changes, some of them were forced and affected to their physical and mental health, then stressed. From the report of Thai people's mental health of Department of Mental Health and National Statistical Office of Thailand 2008 – 2010 revealed that the elderly people had the lowest score of mental health compared with the other ages (National Statistical Office of Thailand, 2012). and the healthcare of the elderly people should have a monitoring system for the health administration to monitor the unexpected symptoms (Damapong, P. and Damapong, P, 2016). In consequence, it should have a stress management or therapy for a good health, an aromatherapy is the alternative medicine by using the natural scent or essential oil which affects to the nervous system, relieve a stress and anxiety, relax or stimulate a balance of body and mind, and a better status.

From this problem information, the researcher concerned about a study on stress and effect of reducing stress with aromatherapy by inhaling lavender essential oil from the kiln for being a guideline for reducing stress in the elderly people.

MATERIALS AND METHODS

Design

This research was the quasi-experimental research and conducted at Wat Khok Ket Health Promoting Hospital, Plai Phong Phang Sub-District, Amphawa District, Samut Songkhram Province.

Subjects

The sample group of this study was 40 elderly people at the age of 60 years old and above who were selected by the Suanprung Stress Test-20 (SPST-20) with the moderate score and above and were divided into 2 groups (20 for the experimental group and 20 for the control group).

The inclusion criteria; 1. a person at the age of 60 years old and above, 2. a person with the moderate score and above, 3. a person with the consciousness and communicative competence, and 4. a person who is pleased and willing to participate in this research.

The inclusion criteria; 1. a person who allergies to the essential oil, 2. a person who could not follow the experimental method and process accurately, and 3. a person who has a problem with the inhalation.

Assessment

Using the Heart Rate Variability (HRV) to assess before and after the experiment in both groups for comparing the experimental group and control group.

Measurement instruments

The measurement instruments for data gathering were the Suanprung Stress Test-20 (SPST-20) of the Department of Mental Health and the Heart Rate Variability (HRV).

Data analysis

Descriptive statistic was used to analyze the characteristic of the volunteers focusing on mean and standard deviation. Additionally, the paired t-test was used to analyze the variables to compared the means before and after of the treatment with 0.95 level of significance ($P<0.05$).

Intervention

The experimental group was treated with aromatherapy by lavender essential oil at the private room without any noise, with 25 degree Celsius, laying down and inhaling essential oil from the kiln for 10 minutes, and the control group was treated by the normal treatment; giving consult on healthcare and stress management as shown in figure 1.

Figure 1: The experimental group was treated with aromatherapy by lavender essential oil**.**

Research methodology

Published the notification for volunteering application with the specified criteria, selected 40 elderly people and divided into 2 groups (20 for the experimental group and 20 for the control group) by using the simple random sampling method with drawing and signing a letter of consent, using the Heart Rate Variability (HRV) to assess before the experiment, then the experimental group was treated with aromatherapy by lavender essential oil, laying down and inhaling essential oil from the kiln for 10 minutes, and the control group was treated by the normal treatment; giving consult on healthcare, stress management and using the Heart Rate Variability (HRV) to assess after the experiment immediately.

RESULTS

The findings revealed that most of them in both groups were female; female (75%) and male (25%) in the experimental group, female (90%) and male (10%) in the control group. They were at the age of 60 – 65 years old; 35% in the experimental group and 40% the control group. They attained the primary education; 90% in the experimental group and 70% the control group. They earned 1,001 – 5,000 Baht monthly for 70% in the experimental group and 600 – 1,000 Baht monthly for 55% in the control group. They had no congenital 55% in the experimental group and 60% in the control group.

Table 1. Compare outcome measures within group between before and after the treatment in the experimental group.

Outcome	Baseline (Mean± SD)	Immediately effectiveness (Mean± SD)	*P*-value
Heart rate variability (HRV) - SDNN (Ms)	65.44±42.43	91.00±71.99	< 0.01*
- LF (ms^2)	05.01±1.61	5.87±2.14	< 0.01*
- HF (ms^2)	4.99±1.88	5.91±1.93	< 0.03*

Note.* $P < 0.05$ is statistically significant differences as compare between before and after the treatment from baseline.

From the experiment of using aromatherapy by lavender essential oil to reduce stress in the elderly people and the Heart Rate Variability (HRV) revealed that the SDNN (Standard Deviation of Normal to Normal) score, Low Frequency (LF) score, and High Frequency (HF) score before and after the experiment immediately, as shown in Table 1. The experimental group had a higher score with a significance level of 0.05, and the comparison of the experimental group and the control group after the experiment immediately revealed that the SDNN (Standard Deviation of Normal to Normal) score of the Heart Rate Variability (HRV) had a higher score with a significance level of 0.05, as shown in Table 2.

Table 2. Compare outcome measures between the experimental group and the control group before and after the treatment.

Outcome	Baseline (Mean± SD)		Effectiveness (Day 3) (Mean± SD)		*P*-value
	Experimental group	Control group	Experimental group	Control group	
Heart rate variability (HRV) - SDNN (Ms)	65.44±42.43	61.90±39.21	98.48±44.33	86.49±66.63	< 0.02*
- LF (ms^2)	05.01±1.61	05.18±1.40	6.10±1.32	6.11±1.65	0.16
- HF (ms^2)	4.99±1.88	4.58±1.59	5.97±1.32	5.31±1.91	0.21

Note.* $P < 0.05$ is statistically significant differences as compare between before and after the treatment from baseline.

DISCUSSION

From the findings revealed that after the experiment, the experimental group who was treated by aromatherapy had a higher the SDNN (Standard Deviation of Normal to Normal) score of the Heart Rate Variability (HRV) affected to the parasympathetic nerve system and a stress reduction which was consistent with the research of Waraporn Yammeesri, (Waraporn Yammeesri, 2004), a study on effect of aromatherapy to relieve the patient at the surgical intensive care unit of Chiangrai Prachanukroh Hospital revealed that the patient who was treated by aromatherapy, had changed in the physiology of relaxation; reduction of heart rate, respiration rate and arterial pressure, consistent with the research of Buckle, (Buckle, J, 1993), a study on the patient without the ventilator after surgery at the surgical intensive care unit compared with 2 types of aromatherapy affecting the physiology of relaxation; lavendula angustifolia and lavendula burnatii revealed that both kinds of lavender had changed the physiology of relaxation in reducing heart rate and relieving stress, and consistent with the research of Peerada Damapong et al., a study on short-term effects of court-type traditional thai massage on pressure pain threshold and pain intensity in patients with chronic tension-type headach, (Damapong, P. Kanchanakhan, N. Eungpinichpong, W.,and Damapong, P, 2016), it indicated that aromatherapy could reduce stress in the elderly people.

CONCLUSION

From the findings and relevant researches of essential oil to reduce stress in the elderly people in using of the Heart Rate Variability (HRV) revealed that the SDNN (Standard Deviation of Normal to Normal) score, Low Frequency (LF) score, and High Frequency (HF) score before and after the experiment immediately and the comparison of the experimental group and the control group had a higher score with a significance level of 0.05, it indicated that after treated by essential oil, they had a lower stress (higher relaxation). Nevertheless, it assumed that inhaling essential oil could reduce stress and increase the parasympathetic nerve system which affected to reduce stress and a higher score of the Heart Rate Variability (HRV) in the elderly people.

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